zenith

SERVICE MANUAL

Product Type:	Color Television Receiver
Chassis:	GA
Manual Series:	CM-150
Manual Part #:	923-03349R1
Model Line:	A-Line
Product Year:	1998

REVISED EDITION

This revised edition includes the original GA manual (923-03349) and the first addendum (923-03412).

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Model Series:

A19A02D	A25A23W84	LGA20A05DM84
A19A02D4	A25A23W9	LGA20A11DM
A19A02D7	A25A74R	LGA20A11DM7
A19A02D74	A25A74R7	LGA20A11DM74
A19A02D8	A25A74R8	LGA20A11DM8
A19A02D84	A25A76R	LGA20A11DM84
A19A11D	A25A76R7	LGA21A22DM
A19A11D4	A25A76R8	LGA21A22DM4
A19A11D7	A27A11D	LGA21A22DM8
A19A11D74	A27A11D4	LGA21A22DM84
A19A11D8	A27A11D8	LGA26A02DM
A19A11D84	A27A11D84	LGA26A02DM4
A20A22D	A27A12D	LGA26A02DM64
A20A22D4	A27A12D4	LGA26A02DM7
A20A22D8	A27A12D8	LGA26A02DM74
A20A22D84	A27A22BT	LGA26A02DM8
A25A02D	A27A22BT4	LGA26A02GM
A25A02D4	A27A22BT8	LGA26A02GM7
A25A02D64	A27A22BT84	LGA26A02GM8
A25A02D7	A27A23W	LGA26A11DM
A25A02D74	A27A23W4	LGA26A11DM4
A25A02D8	A27A23W8	LGA26A11DM64
A25A02D84	A27A23W84	LGA26A11DM7
A25A11D	A27A74R	LGA26A11DM74
A25A11D4	A27A74R8	LGA26A11DM8
A25A11D64	A27A76R	LGA26A12DM
A25A11D7	A27A76R8	LGA26A23WM
A25A11D74	EKA2667BT	LGA26A23WM6
A25A11D8	EKA2968BT	LGA26A23WM7
A25A11D84	LGA20A02DM	LGA26A23WM74
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A25A12D4	LGA20A02DM7	LGA26A23WM9
A25A22BT	LGA20A02DM74	LGA29A11DM
A25A22BT4	LGA20A02DM8	LGA29A11DM4
A25A22BT64	LGA20A02DM84	LGA29A11DM8
A25A22BT7	LGA20A02GM	LGA29A11DM84
A25A22BT74	LGA20A02GM8	LGA29A11GM
A25A22BT8	LGA20A04DM	LGA29A12DM
A25A22BT84	LGA20A04DM7	LGA29A12DM4
A25A23W	LGA20A04DM74	LGA29A12DM84
A25A23W4	LGA20A04DM8	LGA29A23WM
A25A23W6	LGA20A04DM84	LGA29A23WM4
A25A23W64	LGA20A05DM	LGA29A23WM8
A25A23W7	LGA20A05DM7	LGA29A23WM84
A25A23W74	LGA20A05DM74	
A25A23W8	LGA20A05DM8	

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PRODUCT SAFETY SERVICING GUIDELINES FOR AUDIO-VIDEO PRODUCTS

IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-visual service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from Zenith Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

Special components are also used to prevent x-radiation, shock and fire hazard. These components are indicated by the letter "x" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by Zenith Electronics Corporation.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

Caution: Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

Graphic symbols

The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.

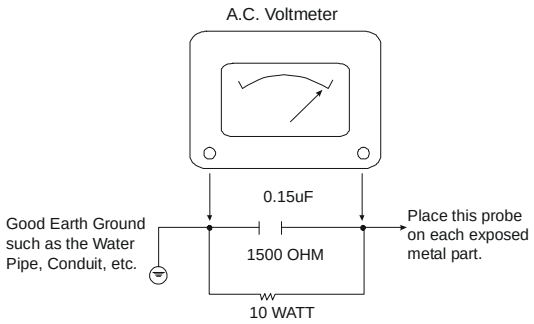
The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items transported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After re-assembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST. Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.


A.C. Voltmeter
0.15uF
Good Earth Ground such as the Water Pipe, Conduit, etc.
1500 OHM
Place this probe on each exposed metal part.
10 WATT

X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of x-radiation. The only potential source of x-rays in current TV receivers is the picture tube. However, this tube does not emit x-rays when the HV is at the factory-specified level. The proper value is given in the applicable schematic. Operation at higher voltages may cause a failure of the picture tube or high-voltage supply and, under certain circumstances may produce radiation in excess of desirable levels.
2. Only factory-specified CRT anode connectors must be used.
3. It is essential that the service personnel have available an accurate and reliable high-voltage meter.
4. When the high-voltage circuitry is operating properly, there is no possibility of an x-radiation problem. Every time a color chassis is serviced, the brightness should be run up and down while monitoring the high voltage with a meter, to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. When troubleshooting and making test measurements in a product with a problem of excessively high voltage, avoid being unnecessarily close to the picture tube and the high voltage power supply. Do not operate the product longer than necessary to locate the cause of excessive voltage.
6. Refer to HV, B+, and shutdown adjustment procedures described in the appropriate schematics and diagrams (where used).

IMPLOSION

1. All direct view picture tubes are equipped with an integral implosion protection system; take care to avoid damage during installation.
2. Use only the recommended factory replacement tubes.

TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using a cart or stand that has not been listed by Underwriters Laboratories, Inc. for use with its specific model of television receiver or generically approved for use with TVs of the same or larger screen size.
8. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

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